

REMARKS

Claims 1-11 and 13-39 are pending and at issue in the above-referenced patent application. By way of this response, claims 1, 5, 7, 8, 11, 13, 14, 15, 19, 21, 22, 23, 27 and 32 have been amended, claim 12 has been canceled without prejudice, and new claims 34-39 have been added. In the office action dated April 23, 2003, claims 1-33 were rejected as unpatentable over one or more of Fardeau et al. (U.S. Patent No. 5,574,962) and Jensen et al. (U.S. Patent No. 6,421,445). The foregoing rejections are respectfully traversed and reconsideration is respectfully requested.

Independent claims 1, 15, 19, and 32 recite apparatus and methods which encode an audio signal with an inaudible code by transforming a long block comprising a plurality of overlapping short blocks of a sampled audio signal into the frequency domain. No such structure is taught or suggested in Fardeau et al. While Fardeau et al. disclose a method for including an inaudible encoded message in a signal, Fig. 1 of Fardeau et al. clearly shows that an audio signal is sampled by an ADC 12, and that the output of the ADC 12 is transformed into the frequency domain by a transform 16. There is no teaching or suggestion of overlapping the outputs (or portions of the outputs) of the ADC 12, or of combining overlapped portions of the output of the ADC into a long block. Nor is there any teaching or suggestion of transforming a long block comprising a series of overlapping short blocks into the frequency domain. Therefore, Fardeau et al. cannot be fairly said to teach or suggest the combinations recited in claims 1, 15, 19 and 32.

Jensen et al. is similarly deficient. Nowhere does Jensen et al. teach or suggest combining overlapping short blocks of samples of an audio signal into a long block to be transformed into the frequency domain. Therefore, regardless of how one combines Fardeau et al. and Jensen et al., one does not arrive at the combinations recited in claims 1, 15, 19 and

32. Consequently, the rejections made in the Office action are flawed and claims 1, 15, 19 and 32, as well as all claims depending therefrom, must be allowed.

Independent claim 5 is also allowable. Independent claim 5 covers a class of methods which determine “a number of overlapping short blocks to make up the long block.” As explained above, neither Fardeau et al. nor Jensen et al. teach or suggest a long block comprising a number of overlapping short blocks. Accordingly, independent claim 5 and all claims depending therefrom are allowable.

Independent claim 27 is also allowable. Claim 27 defines a class of systems including an encoding apparatus which operates on a “long block comprising a number of overlapping short blocks.” As explained above, neither Fardeau et al. nor Jensen et al. teach or suggest a long block comprising a number of overlapping short blocks. Accordingly, independent claim 5 and all claims depending therefrom are allowable.

Independent claims 8 and 37 are also allowable. Independent claim 8 defines a class of apparatus including a processor arranged to examine a plurality of frequency bands in a block to determine if frequency indices in the bands match one of a set of patterns. The apparatus of claim 8 also includes a vote determiner which identifies a code from the block if a majority of the bands have frequency indices that match the same pattern. Neither Fardeau et al, Jensen et al, nor their combination suggest such structure.

For example, as shown in Fig. 2, Fardeau et al. encodes an audio signal by suppressing a particular frequency for a period of time. The decoder reads the code by measuring the length of time the frequency is suppressed. In other words, the width of the suppressed pulse is measured in the time domain to decode the transmitted code. Thus, Fardeau et al. does not include a processor that examines a plurality of frequency bands, a processor that examines frequency indices to determine if they match a pattern, or a vote determiner to identify a code if a majority of the bands have frequency indices matching the

same pattern. Thus, Fardeau et al. cannot fairly be said to teach or suggest the combination recited in claim 8.

Jensen et al is also deficient. While Jensen et al. does convert received audio signals into the frequency domain to decode a transmitted code, and Jensen et al. does analyze *multiple blocks* for persistence of a code before accepting detected data as a code (see Col. 26, ll. 25-38), the Jensen et al. reference does not disclose or suggest either a processor examining multiple bands in the same block of samples for frequency indices that match a pattern, or a vote determiner that identifies a code from that block if a majority of the bands have frequency indices that match the same pattern. Since neither Jensen et al. nor Fardeau et al. disclose or suggest a processor that examines multiple bands in the same block for pattern matches or a vote determiner that identifies a code from the block if a majority of the bands have frequency indices that match the same pattern, regardless of how one combines Jensen et al. and Fardeau et al, one does not arrive at the combination recited in claim 8. Accordingly, claim 8 and all claims depending therefrom must be allowed.

New independent claim 37 is also allowable. Claim 37 recites examining a plurality of predetermined frequency bands in a block to determine if the frequency indices match one of a set of patterns, and identifying a code from the block if a majority of the frequency bands associated with the block have frequency indices that match the same pattern. As explained above, neither Fardeau et al., Jensen et al., nor their combination teach or suggest such a method. Accordingly, claim 37 and all claims depending therefrom must be allowed.

Independent claim 23 is also allowable. Claim 23 defines a class of systems including a decoder which acquires a test value from each frequency band in a predetermined plurality of frequency bands of an audio signal, compares the acquired test values, and determines that one of the test values is a code only if that test value is acquired from a majority of the frequency bands in the predetermined plurality of frequency bands. As explained above,

neither Fardeau et al., Jensen et al., nor their combination teach or suggest such a decoder. Accordingly, claim 23 and all claims depending therefrom must be allowed.

Independent claim 39 is also allowable. Claim 39 defines a class of methods including acquiring a test value from each frequency band in a predetermined plurality of frequency bands; comparing the acquired test values; and determining that one of the test values is a code only if the one of the test values is acquired from a majority of the frequency bands in the predetermined plurality of frequency bands. As explained above, neither Fardeau et al., Jensen et al., nor their combination teach or suggest such a decoder. Accordingly, claim 39 must be allowed.

Before closing, the applicants note that, with the exception of the word “overlapping” to claims 1, 5, 15, 19, 27 and 32, the amendments made throughout the claims are either broadening or clarifying in that the amended claims are intended to state the same thing as the claim prior to amendment (i.e., to have the same scope both before and after the amendments) in a more easily understood or more conventional fashion. Thus, with the exception of the addition of the word “overlapping” mentioned above, none of the amendments made in this response give rise to prosecution history estoppel or limit the scope of equivalents of the claims under the doctrine of equivalents.

The amendments made to claims 5, 7, 19, 21, 22, and 32 to remove the “step” language deserve further mention to clarify the record. In particular, those amendments were made to make it clear that *none* of the pending claims are step-plus-function claims falling under 35 U.S.C. § 112, paragraph 6. As a result, the amendments to claims 5, 7, 19, 21, 22, and 32 are either broadening or do not change the scope of the claims. Consequently, like the other broadening and/or clarifying amendments mentioned above, the amendments removing the “step” language from the pending claims do not give rise to prosecution history estoppel or limit the scope of equivalents of the claims under the doctrine of equivalents.

If the Examiner is of the opinion that a telephone conference would expedite the prosecution of this case, the Examiner is invited to contact the undersigned at the number identified below.

Respectfully submitted,

Dated: 10 / 6 / 03

Frankie Ho

Frankie Ho
Reg. No. 48,479
Attorney for Applicant
GROSSMAN & FLIGHT, LLC
20 N. Wacker Dr., Suite 4220
Chicago, IL 60606
Tel: (312) 580-1020
Fax: (312) 580-9696